

Dark Matter Searches with the COSINE-100 Experiment

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COSINE-100 is a direct dark matter detection experiment using ~106 kg of low-background NaI(Tl) detectors submerged in a veto counter consisting of 2 tons of liquid scintillator to test the DAMA/LIBRA's claim of dark matter observation. The physics run of the experiment began in September 2016 with an average background rate of 3.5 counts/keV/kg/day in the energy region between 2–6 keVee. We observed no excess of events above COSINE-100's background model, allowing us to rule out the spin-independent WIMP interpretation of the DAMA signal using the first 59.5 days of data from COSINE-100. Additionally, we search for a dark matter-induced annual modulation and observe best fit values of modulation amplitude and phase of 0.0092 ± 0.0067 counts/keV/kg/day and 127.2 ± 45.9 days, respectively, using the first 1.7 years of the data. In this talk, I will present status of the COSINE-100 experiment and prospects for future experiments.

Primary author: Mr ADHIKARI, Govinda (Sejong University)

Presenter: Mr ADHIKARI, Govinda (Sejong University)

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